

# Tutorial On RISC V

## Simulator

- I'll be using Rars, also see description of system calls here.
- Can try Venus, Github repo: <https://github.com/kvakil/venus>. Note that for system calls, their argument register is different, see this.

## Examples

### Hello Word

```
.globl start

.data

msg: .asciiz "hello world"

.text

start:
    li a0, 4
    la a1, msg
    ecall
    li a0, 10
    ecall
```

### Fibonacci

```
.globl __start

.data
msg1: .string "Please enter a number: "
msg2: .string "The "
msg3: .string " fibonacci number is: "
```

```

.text

__start:
    li t0, 0
    li t1, 1
    # prints msg1
    li a0, 4
    la a1, msg1
    ecall
    # reads an int and moves it to register t3
    li a0, 5
    ecall
    mv t3, a0
    # prints a newline
    li a0, 11
    li a1, '\n'
    ecall
    # prints msg2
    li a0, 4
    la a1, msg2
    ecall
    # prints the int value in t3
    li a0, 1
    mv a1, t3
    ecall
    # fibonacci program
fib:
    beq t3, zero, finish
    add t2, t1, t0
    mv t0, t1
    mv t1, t2
    addi t3, t3, -1
    j fib
finish:
    # prints msg3
    li a0, 4
    la a1, msg3
    ecall
    # prints the result in t0
    li a0, 1
    mv a1, t0
    ecall
    # prints a newline
    li a0, 11
    li a1, '\n'

```

```
ecall  
# ends the program with status code 0  
li a0, 10  
ecall
```